FEB 1 0 2006

Docket No.: CM03024J

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant(s):	CARTER, Charles H., Jr.	Group/Art Unit:	2644
Application No.:	09/826,503	Examiner:	Graham, Andrew R.
Filed:	April 5, 2001	Confirmation No.	7883
Title:	METHOD FOR ACOUSTIC TRANSDUCER CALIBRATION		
Docket Date	March 7, 2006		

TRANSMITTAL LETTER FOR BRIEF ON APPEAL

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Enclosed please find an Appeal Brief filed on behalf of applicant in the matter of the above entitled application. This Brief is filed pursuant to 37 CFR § 1.192 and following the Final Rejection dated September 7, 2005. A Petition for Extension of Time to respond, with fee authorization, is submitted concurrently herewith.

The Commissioner is hereby authorized to charge the required fee ($500.00) for filing the enclosed Brief to Deposit Account 50217, Motorola, Inc.

Respectfully submitted,

February 10, 2006

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CERTIFICATE OF TRANSMITTAL	
I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office, Centralized Facsimile No. 571-273-8300 addressed to Mail Stop Appeal Brief – Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date listed below:	
Date:	February 10, 2006
Signature:	Vfreebourne Vernice Freebourne

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is in furtherance of the above-identified application, for which a Notice of Appeal, transmitted via facsimile on November 10, 2005.

The fees required under 37 C.F.R. § 41.20(b)(2), and any required petition for extension of time for filing this Appeal Brief are dealt with in the accompanying Transmittal Form.

This brief is being transmitted by facsimile pursuant to 37 C.F.R. § 1.6(d).

This brief contains items under the headings listed in the following Table of Contents, and in the order indicated in 37 C.F.R. § 41.37(c).

TABLE OF CONTENTS

I. REAL PARTY IN INTEREST

The real party of interest is Motorola, Inc., by virtue of an Assignment duly executed by the named inventor and recorded in the United States Patent and Trademark Office on April 5, 2001, under Reel/Frame, 011698/0952.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellant, the Appellant's legal representative, or assignee which will directly affect or be directly affected by or having a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

This is an appeal from the final Office Action mailed September 7, 2005, rejecting claims 1 and 3-8 of the above-identified application.

A. TOTAL NUMBER OF CLAIMS IN APPLICATION

Claims in the application are: 6

B. STATUS OF ALL THE CLAIMS

1. Claims allowed: none
2. Claims objected to: 5
3. Claims rejected: 1 and 3-8

C. CLAIMS ON APPEAL

The claims on appeal are: 1 and 3-8.

IV. STATUS OF AMENDMENTS

A Final Rejection was mailed September 7, 2006 in response to an Amendment filed June 24, 2005. The Amendment and arguments were considered by the Examiner, but deemed not persuasive. Applicants faxed a Notice of Appeal on November 10, 2005. This Appeal Brief is submitted in support of the Notice of Appeal.

V. SUMMARY OF THE CLAIMED INVENTION

The present invention relates to methods of acoustic transducer calibration for a portable communication device, such as a portable two-way radio. Referring to FIGs. 2 and 4, a band limited pseudo random noise source (201) in conjunction with an internal digital signal processor (209, 403) tailor audio characteristics of an internal microphone (103) and internal speaker (301) within a communications device (101) to ensure consistent amplitude and frequency characteristics of these microphone and speaker transducer devices. The tuning of the amplitude and frequency response consistently converges to the desired filter response with a filter type offering operational stability.

VI. ISSUES ON APPEAL

a) *Whether claim 8 should be rejected under 35 U.S.C. §103(a) as being unpatentable over Richardson (USPN 5,771,297) in view of Powter et al. (USPN 3,912,880).*

b) *Whether claim 5 should be rejected under 35 U.S.C. §103(a) as being unpatentable over Richardson in view of Powter and in further view of Wong et al (USPN 5,881,103).*

c) *Whether claim 6 should be rejected under 35 U.S.C. §103(a) as being unpatentable over Richardson in view of Powter and Wong et al and in further view of Eatwell et al (USPN 5,481,615).*

d) *Whether claims 7, 1, 3, and 4 should be rejected under 35 U.S.C. §103(a) as being unpatentable over Richardson in view of Powter and Wong and in further view of Rapaich (USPN 4,631,749).*

VII. GROUPING OF CLAIMS

Claim 1 and 3-8 stands or fall together.

VIII. ARGUMENT

a) Claim 8 is patentable over Richardson (USPN 5,771,297) in view of Powter et al. (USPN 3,912,880).

On page 2 (item 2) of the Final Office Action dated Sept. 7, 2005, the Examiner disagreed with Applicants assertion that the microphone (13) of Richardson is used as feedback to monitor a response of the speaker (12). However, The Abstract specifically states that this is the very purpose of microphone element (13). Neither Richardson nor Powter taken individually or combined teach that which is claimed in independent claim 8. Claim 8 calibrates an internal speaker of a portable communication device and specifically recites producing an optimized internal speaker output. The microphone of Richardson is

used as feedback to monitor a response not for calibration of the speaker. Richardson teaches that overdriving the speaker causes noise and distortion and uses the microphone to sense clipping. Richardson uses a specific test microphone as described in column 1, line 67 through col. 2, lines 1-10 where the mounting examples of Richardson's microphone are positioned in front of the speaker, behind the speaker or built within the cone as a sensor. The positioning taught by Richardson supports Applicant's assertion that the test microphone of Richardson is not the equivalent of Applicant's portable communication device's internal microphone. Richardson's electronic device provides loudspeaker capability and if Richardson's electronic device provides receiver capability then it requires an additional internal microphone – not microphone (13).

Applicant's claim the use of a portable communication device's internal microphone, as claimed in claim 8. No additional test microphone is needed in Applicant's invention. The Powter reference is based entirely on stimulating a microphone with noise and measuring a frequency response of the microphone – not calibrating the microphone or the speaker. Furthermore, Powter uses an external noise source. Thus, Powter and Richardson are not readily combinable and even if were combined do not produce that which is claimed by Applicant's claim 8. Accordingly, claim 8 is patentable over Richardson (USPN 5,771,297) in view of Powter et al. (USPN 3,912,880).

b) Claim 5 is patentable over Richardson in view of Powter and in further view of Wong et al (USPN 5,881,103).

Applicant's claim 5 is directed to calibration for tuning an internal microphone and internal speaker of a portable two-way radio. As discussed above, Richardson' s microphone (13) is a test microphone. There is no teaching or suggestion that the Richardson microphone (13) can be used for internal microphone for two-way radio operation. Indeed, microphone (13) cannot function in this capacity as it is used only for

feedback to the transducer (12) –as such Richardson's microphone can only operates as a test microphone.

Applicant's specifically recite in independent claim 5, filtering the output of the internal microphone to provide a compensated microphone signal. Neither Richardson nor Powter taken individually or combined teach calibrating a microphone. Again, Richardson teaches that overdriving the speaker causes noise and distortion and uses the microphone (13) to sense clipping. Applicant amended claim 5 to correct the typographical error changing "and" to -- an -- as indicated by the Examiner. Applicant respectfully requests that the Examiner's objection to Claim 5 be withdrawn.

Accordingly, claim 5 is patentable over Richardson in view of Powter and in further view of Wong et al (USPN 5,881,103).

c) Claim 6 is patentable over Richardson in view of Powter and Wong et al and in further view of Eatwell et al (USPN 5,481,615).

In addition to the arguments presented above, claim 6 is a dependent claim providing further limitation to what is believed to be an allowable claim 5 and hence is also in condition for allowance.

d) Claims 7, 1, 3, and 4 are patentable over Richardson in view of Powter and Wong and in further view of Rapaich (USPN 4,631,749).

None of the cited reference taken individually or combined teaches that which is claimed by Applicant's invention. Claims 3 and 4 are dependent claims providing further limitations to what is believed to be an allowable claim 1 and hence are also in condition for allowance.

Claim 7 is directed to optimizing the frequency response and gain of a microphone located in a portable communication device. The steps of claim 7 produce an optimized

microphone output for the portable communication device through claimed operations and elements located "within the portable communication device". As stated above, neither Richardson nor Powter optimize a microphone. Likewise, Wong does not calibrate the microphone. Additionally, Wong requires a plurality of auxiliary input and output signal devices as opposed to devices "within" the portable communication device. Thus, even if the references were combinable they would not produce internal microphone calibration. Accordingly, claim 7 is patentable over the cited references.

Claim 1 recites directing the pseudo random acoustical noise to an input of an internal microphone used with the portable communications device; and adjusting first coefficients in at least one digital signal processor connected to the internal microphone for a desired microphone frequency response based upon the input of pseudo random acoustical noise. Neither, Richardson nor Powtor teaches internal microphone calibration. Likewise, Wong does not calibrate the microphone. Further more, Wong requires the use of a reference audio response corresponding to an ideal response for the accessory device as described in column 4, lines 29-30. No such ideal response is used in Applicant's invention. Applicant maintains that these references, even if they could be combined, would not result in that which is claimed by impendent claim 1. Thus, claim 1 is patentable over the cited references.

Conclusion

For the reason set forth above, Applicant respectfully requests reconsideration of the claims as pending in view of the above remarks.

Respectfully submitted,

February 10, 2006

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IX. CLAIMS APPENDIX

1. A method for acoustic transducer calibration in a portable communications device comprising the steps of:

providing a source of pseudo random acoustical noise to a characterized external speaker source separate from the portable communications device;

directing the pseudo random acoustical noise to an input of a an internal microphone used with the portable communications device;

adjusting first coefficients in at least one digital signal processor connected to the internal_microphone for a desired microphone frequency response based upon the input of pseudo random acoustical noise;

discontinuing the source of pseudo random acoustical noise from the external speaker source;

applying the source of pseudo random acoustical noise to an internal speaker source in the portable communications device;

increasing the amplitude of the pseudo random acoustic noise such that it can be detected by the internal microphone;

adjusting second coefficients in the at least one digital signal processor for a desired internal speaker frequency response based upon the input of the pseudo random acoustical noise;

returning the portable communications device to an operational mode; and

utilizing a filter between the source of pseudo random acoustical noise and the external speaker to compensate for irregularities in the frequency response of the external speaker.

Claim 2 (canceled)

3. A method of acoustic transducer calibration as in claim 1 further including the step of:

comparing the output of the at least one digital signal processor with an optimal acoustic signal from the output of the pseudo random acoustic noise to provide an error signal for adjusting the coefficients of the at least one digital signal processor.

4. A method of acoustic transducer calibration as in claim 1 wherein the source of pseudo random noise is from the at least one digital signal processor.

5 (currently amended): A method of acoustic transducer calibration for tuning ~~and~~ an internal microphone and internal speaker in a portable two-way radio without the use of test equipment comprising the steps of:

supplying a source of pseudo random noise from at least one digital signal processor;

filtering the pseudo random noise to provide a compensated pseudo random noise signal;

supplying the compensated pseudo random noise signal to a speaker external to the portable two-way radio;

directing the compensated pseudo random noise signal to the internal microphone associated with the portable two-way radio;

filtering the output of the internal microphone to provide a compensated microphone signal;

supplying the compensated microphone signal to the at least one digital signal processor;

comparing the output of the source of pseudo random noise with an output of the at least one digital signal processor;

compensating a plurality of filter coefficients in the at least one digital signal processor based upon differences in the source of the pseudo random noise and an output of the at least one digital signal processor; and

stopping the source of pseudo random noise; and

returning the portable two-way radio to an operational mode.

6. A method of acoustic transducer calibration as in claim 5, further including the step of:

delaying the source of pseudo random noise compared with the output of the at least one digital signal processor for synchronizing the source of pseudo random noise with the output of the at least one digital signal processor.

7. A method of acoustic transducer calibration for optimizing the frequency response and gain of a microphone located within a portable communication device comprising the steps of:

generating a source of acoustic pseudo random noise from at least one digital signal processor located in the portable communications device;

providing the acoustic pseudo random noise to an external speaker;

directing the acoustic pseudo random noise from the external speaker to the microphone located within the portable communication device;

porting the output of the microphone to the at least one digital signal processor;

comparing the acoustic pseudo random noise with an output of the at least one digital signal processor; and

adjusting a plurality of coefficients in the at least one digital signal processor based upon differences in the acoustic pseudo random noise and the output of the at least one digital signal processor to produce an optimized microphone output for the portable communications device.

8. A method of acoustic transducer calibration for optimizing the frequency response and gain of an internal speaker located within a portable communication device comprising the steps of:

generating a source of acoustic pseudo random noise from at least one digital signal processor located in the portable communications device;

providing the acoustic pseudo random noise to the internal speaker;

directing the acoustic pseudo random noise from the internal speaker to a microphone in the portable communications device;

porting the output of the internal speaker to the at least one digital signal processor;

comparing the acoustic pseudo random noise with an output of the at least one digital signal processor; and

adjusting a plurality of coefficients in the at least one digital signal processor based upon differences in the acoustic pseudo random noise and the output of the at least one digital signal processor to produce an optimized internal speaker output for the portable communications device.